



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,208	07/22/2003	Robert Halford	59425-294979	7061

25764 7590 01/17/2006

FAEGRE & BENSON LLP
PATENT DOCKETING
2200 WELLS FARGO CENTER
MINNEAPOLIS, MN 55402

EXAMINER

DILDINE JR, R STEPHEN

ART UNIT	PAPER NUMBER
----------	--------------

2133

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,208

Applicant(s)

HALFORD, ROBERT

Examiner

R. Stephen Dildine

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-27 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31 is/are allowed.
- 6) ☒ Claim(s) 1,4,7,9,12,13,16,17,25,26 and 32 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,8,10,11,14,15,18-24,27,29 and 30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3 IDS's.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 2133

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawing sheets filed 18 January 2005 are objected to under 37 CFR 1.84(c) and 1.121(d) for failure to be identified as "Replacement Sheet" or "New Sheet". Further, it is noted that sheets 1/19, 5/19, 8/19-10/19 and 13/19-14/19 and 16/19-19/19 are missing from the record (it is further noted that the drawings as originally filed were designated as "1 of 24" through "24 of 24", *i.e.* there are 24 sheets of drawings, not 19). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

The "amendment" to the PGPub of this application filed 18 January 2005 has not been entered.

If this was intended to change the PGPub, it is noted that the proper method of correcting published documents is set forth in 35 U.S.C. 255. However, by use of the words "appears in a patent", 35 U.S.C. 255 does not provide for a certificate of correction in a PGPub document.

If this was intended to change the specification in the file wrapper (IFW), the directions contained in this "amendment" identifies paragraphs by the bracketed numbers of the PGPub instead of by page and line numbers of the specification as filed, therefore this "amendment" fails to comply with 37 CFR 1.121(b)(1)(i) because it fails to contain an "instruction, which unambiguously identifies the location" of the substituted paragraph as required.

The amendment to the claims filed 18 January 2005 contains a claim 28 (Original) followed by instructions to cancel claim 28. Since the application as filed contained two claims designated "28", the instruction to cancel claim 28 has cancelled both claims 28. If applicant wishes to reinstate the claim 28 (Original) presented in the amendment, he must resubmit this claim as a new claim with a new number (*e.g.* 33, if appropriate).

It is noted that throughout the specification, applicant has presented polynomials in the form $g1(x) = 1 + x^3 + x^4 + x^5 + x^8$ (example from page 11, line 12). Applicant should have presented these polynomials in the form $g1(x) = 1 + x^3 + x^4 + x^5 + x^8$ for example.

Claim Objections

Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Assuming that by "said error control code" applicant meant "said error correction code" (see the 35 U.S.C. 112 rejection below), the recitation "the error control code is generated by dividing the data by the polynomial, the error control code being the remainder modulo the polynomial" of claim 16 is equivalent to the recitation "dividing the data byte by the polynomial to produce an error correction code" of parent claim 13.

Claims 29-30 are objected to as being dependent upon a cancelled base claim.

Applicant is advised that should claim 1 be found allowable, claim 32 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. "six pair combinations of column elements can be equated to a data row element pair" does not appear to have been disclosed in the specification, only -- six pair combinations of column elements can be equated to a data column element pair -- appears to have been disclosed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 12 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawahara (6,158,026, cited by applicant in the IDS filed 21 June 2004). Kawahara teaches the following:

- 1) selecting an irreducible polynomial (“data of a matrix as symbols (for example, bytes) is encoded in the row direction with for example Reed Solomon code”, column 1, lines 29-31, it being noted that a Reed-Solomon code is, by definition, generated by an irreducible polynomial)
- 2) generating an error control code as a function of the polynomial and the data (“Thus, an outer code parity is generated”, column 1, lines 31-32)
- 3) generating an encoded data matrix wherein the data and the error control code comprise the elements of the matrix (“comprising a means for squaring a first matrix of a generated polynomial”, column 3, lines 19-20)
- 4) dispersing an element of the encoded data matrix to a selected one of a plurality of channels based upon a position of the element in the matrix (recording heads 35-50 of Fig. 4)
- 5) wherein the data is digitally represented by eight bits (see Fig. 2B)
- 6) wherein the polynomial is selected as an eighth degree polynomial (“ $X^8+X^4+X^3+X^2+1$ (1)”, column 2, line 35)
- 7) wherein each codeword element is sent to a separate device (recording heads 35-50 of Fig. 4)
- 8) selecting an irreducible error correcting eighth degree polynomial (“data of a matrix as symbols (for example, bytes) is encoded in the row direction with for example Reed Solomon code”, column 1, lines 29-31, it being noted that a Reed-Solomon code is, by definition, generated by an irreducible polynomial)

Art Unit: 2133

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 12-13, 16-17 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara (6,158,026, cited by applicant in the IDS filed 21 June 2004) as applied to claim 1 above, and further in view of Collins et al. (4,513,420, cited by applicant in the IDS filed 21 June 2004). Collins et al. teaches that one of ordinary skill in the art would generate an error control code by dividing the data by the polynomial ("Included in the system is a logic circuit for dividing a data word by a polynomial during the time the data word is being written into the primary memory unit resulting in the generation of a remainder", abstract, lines 3-8) as in applicant's claims 7, 12-13, 16-17 and 25-26 because these types of decoding schemes are very efficient and do not require the computation of syndromes.

Allowable Subject Matter

Claim 31 is allowed.

Claims 3, 5-6, 8, 10-11, 14-15, 18-24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2133

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Glaise (EP 0 563 491 A1) shows a matrix having c columns and m rows of elements, said elements being generated from a irreducible generator polynomial of degree n , Mazières teaches (at the page headed "CYCLIC REDUNDANCY CHECK (CRC)") that one should select a divisor polynomial $C(x)$ of degree k which is irreducible, Dabir et al. disclose remainder decoding, Sako et al. states "The Reed-Solomon code processed in the unit of for example eight bits (one byte) defines an irreducible polynomial for example $x^8+x^4+x^3+x^2+1$ in Galois Field $GF(2^8)$ " (paragraph [0129]).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is (571) 272-3820. The examiner can normally be reached on M - F 5:30 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


R. Stephen Dildine

R. Stephen Dildine
Primary Examiner
Art Unit 2133